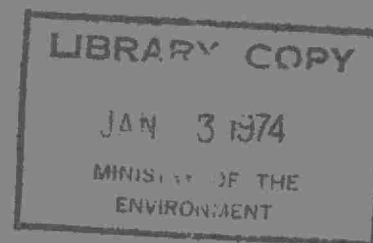


OPERATING SUMMARY

DUNNVILLE

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Ontario

Ministry of the
Environment

135 St. Clair Avenue West
Toronto 195, Ontario

We are pleased to present you with the 1972 operating summary for the water supply system serving your community.

This summary contains data on the quality and quantity of water produced as well as relevant financial information. Of particular interest is the review of the year's activities in which significant items of these data are discussed in some detail by the operations engineer and his staff who, through their day-to-day involvement with the operation, are thoroughly familiar with the plant.

We appreciate your continuing interest in the operation of this water supply.

D.S. Caverly,
Assistant Deputy Minister.

D.A. McTavish, P. Eng.,
Director,
Project Operations Branch.

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ACTING REGIONAL SUPERVISOR
B. W. Hansler

OPERATIONS ENGINEER
J. Nurmberg

135 St. Clair Avenue West
Toronto 195

DUNNVILLE
WATER TREATMENT PLANT

operated for

THE TOWN OF DUNNVILLE

THE ELECTRIC REDUCTION COMPANY LIMITED

SHERBROOKE METALLURGICAL COMPANY LIMITED

by the

MINISTRY OF THE ENVIRONMENT

1972 ANNUAL OPERATING SUMMARY



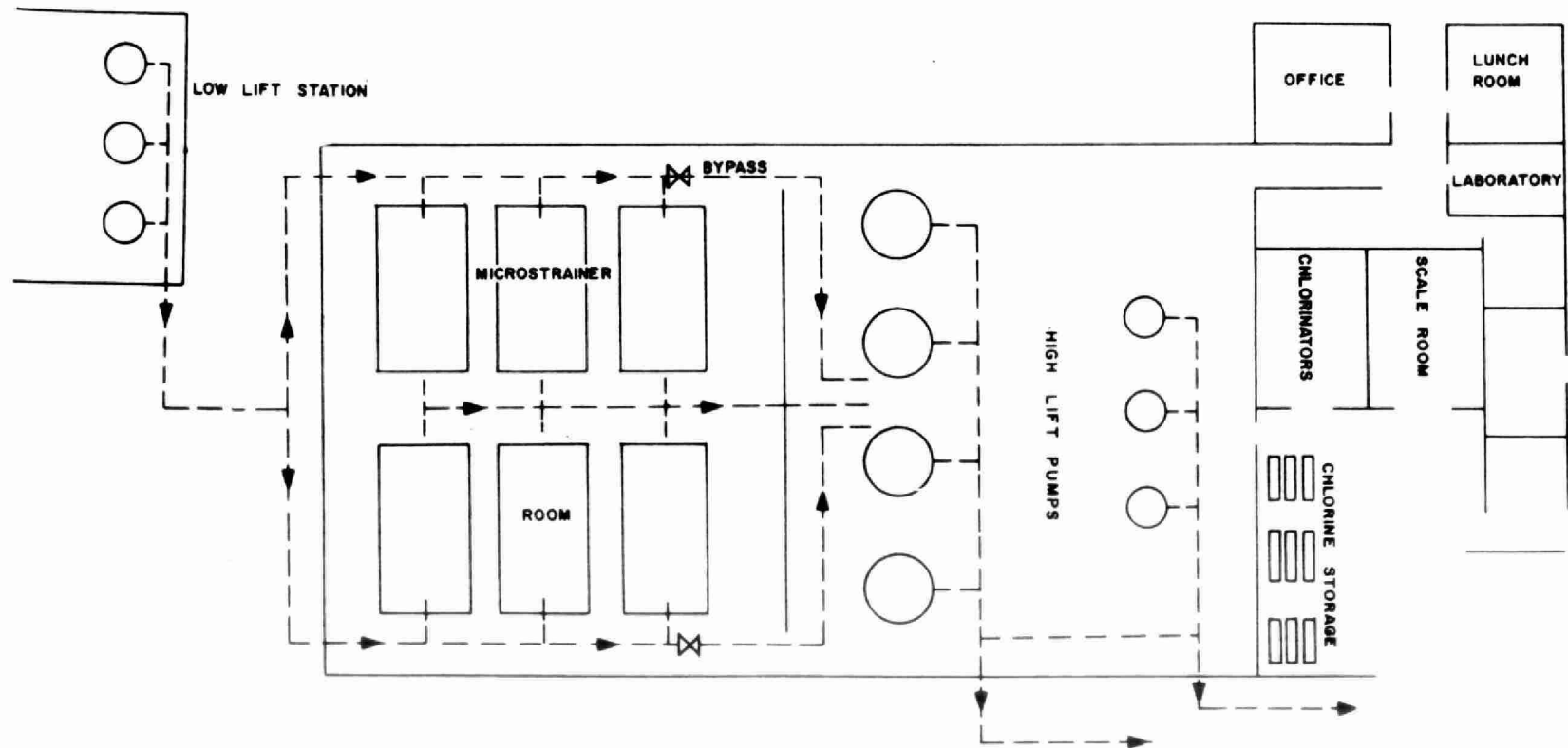
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DUNNVILLE REGIONAL WATER TREATMENT PLANT



DESIGN DATA

PROJECT NO.	6-0017-58	<u>INTAKE</u>	<u>CLEARWELL</u>
NOMINAL CAPACITY	20.5 mgd	<u>Depth of Intake</u> - 17 - 20 ft	Size: Two compartments, total capacity 200,000 gal.
RAW WATER SOURCE	Lake Erie	<u>Intake Pipe</u>	<u>CHLORINATION</u>
		Size: 1600 ft of 48" dia asbestos bonded corrugated metal	<u>Chlorinator</u>
		<u>LOW LIFT PUMPING STATION</u>	Type: W & T A-711
		<u>Screens</u>	Size: Two 2000 lb per day
		One removable screens 5' 6" sq with 3/8" openings one travelling water bar screen	Chlorine added at entrance to clear well
		<u>Low Lift Pumps</u>	<u>HIGH LIFT PUMPS</u>
		Type: Byron Jackson vertical turbine	<u>Supply to Dunnville</u> (via 23,000 ft of 16" dia asbestos cement pipe)
		Size: Four 5700 gpm @ 38 ft TDH	Type: Wheeler Economy single stage
		<u>MICROSTRAINER</u>	Size: One 1000 gpm @ 135' TDH
		Type: Glenfield & Kennedy with MK 1 fabrice (opening size 35 microns)	Two 1200 gpm at 230' TDH
		Size: Six 10' x 10'	<u>Supply to Port Maitland</u> (via 20,000 ft of 36" dia reinforced concrete pipe)
			Type: Worthington single stage
			Size: Four 4000 gpm @ 200' TDH

'72 Review

PLANT FLOWS & CHLORINATION

A total of 3666.98 million gallons was treated during the year. The total flow to the Town of Dunnville was 440.26 million gallons, to Electric Reduction Company 950.28 million gallons and to Sherbrooke Metallurgical Company 2275.93 million gallons, representing a 1.5 percent increase, a 3.8 percent increase and a 25 percent increase respectively from 1971.

The average daily flow was 8.81 million gallons.

A total of 36,910 pounds of chlorine was used during the year with an average dosage rate of 1.0 mg/l to obtain a residual of 0.5 mg/l in the treated water.

WATER QUALITY

A total of 45 samples of raw water, 46 samples of treated water to the industrial system and 92 samples of treated water to the municipal system were analyzed for the presence of coliforms. The average coliform count in the raw water was 90 per 100 millilitres and was essentially zero for the treated water.

ALGAE ENUMERATION

Tests for the total algae count were carried out monthly on raw water samples. The average algae count was 682 ASU per ml. The two highest algae counts were noted in August and October when counts of 1094 and 897 ASU per ml were recorded. The minimum algae count was noted early in February when 424 ASU per ml was recorded. The algae concentration in the raw water has shown a decreasing trend over the last four years.

TURBIDITY

The average turbidity for raw and treated water was approximately 16.3 Jackson turbidity units. At no time did the treated water turbidity meet the Ministry of the Environment standards of 1.0 JTU.

CONCLUSIONS

The Dunnville Regional Supply System was well operated during the year, producing a very good supply of water for the consumers.

PROJECT COSTS

DUNNVILLE # 6-0017-58

NET CAPITAL COST	546,820.36
------------------	------------

Long Term Debt to MOE	<u>546,820.36</u>
-----------------------	-------------------

Debt Retirement Balance at Credit (Sinking Fund) December 31, 1972	<u>176,397.03</u>
---	-------------------

Net Operating	27,300.09
Debt Retirement	4,783.00
Reserve	2,203.90
Interest Charged	<u>144,026.57</u>

TOTAL	<u>178,313.56</u>
-------	-------------------

RESERVE ACCOUNT

Balance @ January 1, 1972	22,446.97
---------------------------	-----------

Deposited by Municipality	2,203.90
---------------------------	----------

Interest Earned	1,367.65
-----------------	----------

Less Expenditures	<u>1,285.99</u>
-------------------	-----------------

Balance @ December 31, 1972	<u>24,732.53</u>
-----------------------------	------------------

PROJECT COSTS

ELECTRIC REDUCTION CO.
6-0017-58

NET CAPITAL COST

1,109,811.10

Long Term Debt to MOE

1,109,811.10

Debt Retirement Balance at Credit
(Sinking Fund) December 31, 1972

363,646.24

Net Operating
Debt Retirement
Reserve
Interest Charged

65,508.49

9,519.00

4,165.71

TOTAL

79,193.20

RESERVE ACCOUNT

Balance @ January 1, 1972

50,056.53

Deposited by Municipality

4,165.71

Interest Earned

3,241.14

Less Expenditures

3,088.43

Balance @ December 31, 1972

54,374.95

PROJECT COSTS

SHERBROOKE METALLURGICAL CO.
#6-0017-58

NET CAPITAL COST

911,650.24

Long Term Debt to MOE

911,650.24

Debt Retirement Balance at Credit
(Sinking Fund) December 31, 1972

299,076.54

Net Operating
Debt Retirement
Reserve
Interest Charged

53,808.46
7,781.00
3,422.06

TOTAL

65,011.52

RESERVE ACCOUNT

Balance @ January 1, 1972

40,593.86

Deposited by Municipality

2,755.68

Interest Earned

2,622.57

Less Expenditures

2,539.47

Balance @ December 31, 1972

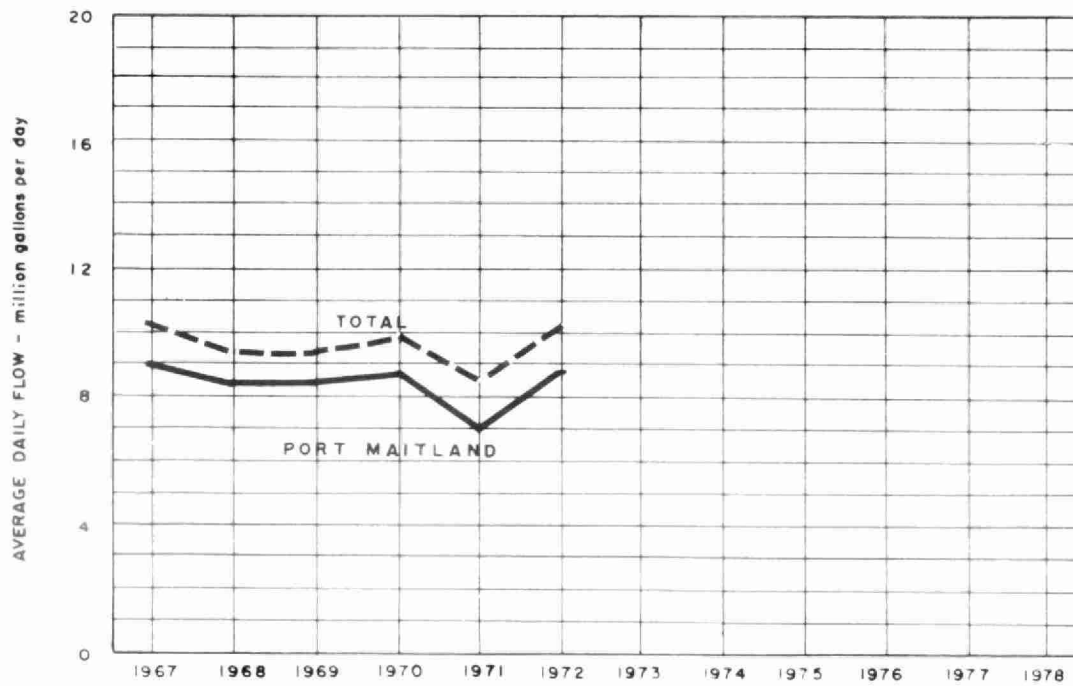
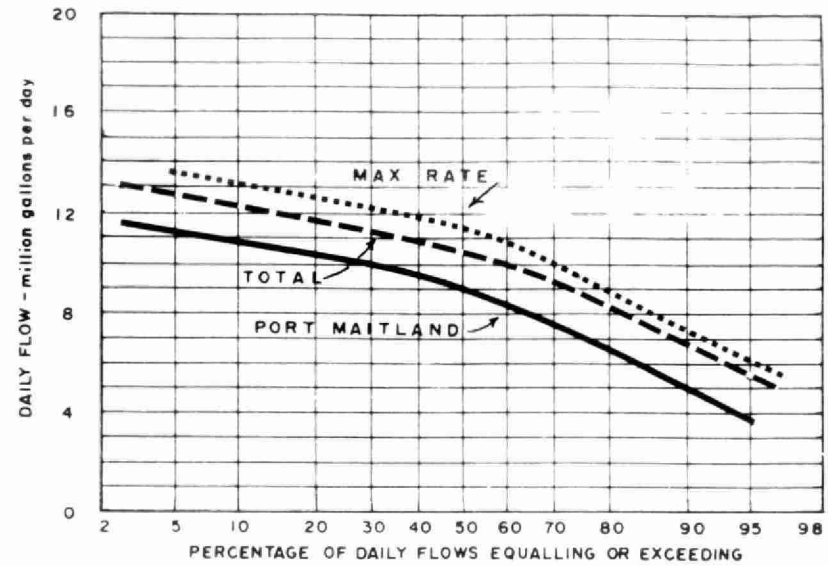
43,332.64

MONTHLY OPERATING COSTS

MONTH	TOTAL EXPENDITURE	REGULAR PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICALS	GENERAL SUPPLIES	EQUIPMENT	REPAIRS and MAINTENANCE	SUNDRY	TRAVEL
JAN	10591.31	5483.40		117.88	3467.20		37.52	1496.25		24.75	
FEB	11133.46	5823.57		187.99	2887.00	1260.00	234.66	33.00	667.22	40.02	
MAR	11258.78	5693.76		189.32	3539.80		14.45	30.96	370.83	1362.36	57.30
APR	11556.47	6096.31		151.04	3873.28	432.73	714.27	50.00	79.25	48.59	
MAY	9901.53	5910.69		120.45	3544.48		106.15		127.16	107.60	
JUNE	15721.80	8515.05		35.79	4095.52		310.56		320.20	2364.28	80.40
JULY	1732.74	145.65		4.78			169.27	439.95	942.37	30.72	
AUG	7659.43	5719.07	132.58	10.78		830.33	79.41		904.40	(2.06)	
SEPT	17600.91	5979.41	408.41		10660.80		151.29		239.75	78.75	82.50
OCT	11708.34	6045.97	33.79		3989.80		159.58		1256.33	222.87	
NOV	3479.65	308.53		24.16			94.03	144.90	1075.46	1736.85	95.72
DEC	34383.62	22612.38	306.05	126.58	7509.92	1111.60	488.09	324.71	1732.83	107.41	
TOTAL	146617.04	78333.79	880.83	968.77	43567.80	3634.66	2559.28	2519.77	7715.80	6122.14	379.97

Brackets indicate credit.

FLOWS



DESIGN CAPACITY 20.5 MGD

MONTHLY FLOWS

MONTH	TOTAL FLOWS in millions of gallons			
	PORT MAITLAND	SHERBROOKE	ERCO	DUNNVILLE
JAN	175.00	104.99	70.01	34.68
FEB	257.92	182.30	75.62	30.82
MAR	279.23	196.79	82.44	30.43
APR	299.51	210.00	89.51	30.24
MAY	333.16	244.34	88.82	36.86
JUNE	299.61	224.47	75.14	39.05
JULY	295.00	201.92	93.07	43.85
AUG	154.06	67.50	86.51	49.83
SEPT	299.23	219.45	79.68	41.25
OCT	246.44	169.97	76.47	36.33
NOV	281.90	220.57	61.33	34.80
DEC	305.31	233.63	71.68	32.02
TOTAL	3226.22	2275.93	950.28	440.26
AVG.	8.81	6.22	2.60	1.20

PLANT PERFORMANCE

MONTH	FLOWS			RAW WATER			TREATED WATER					
	TOTAL PLANT OUTPUT million gallons	AVERAGE DAILY FLOW million gallons	MAXIMUM DAY'S FLOW million gallons	TOTAL ALGAE ASU/ml	TURBIDITY (AVERAGE) JTU	FILTER- ABILITY INDEX units	TURBIDITY		FILTER- ABILITY INDEX units	TOTAL ALGAE ASU/ml	TEMPERATURE	
							AVERAGE JTU	MAXIMUM JTU			AVERAGE ° F	MAXIMUM ° F
JAN	209.78	6.70	9.18	814	38.8	.34	38.7	69.0	.08		33	35
FEB	288.72	9.96	10.85	424	6.0	.07	6.1	15.0	.03		32	32
MAR	309.64	9.99	12.24	464	10.6	.09	10.4	31.0	.06		32	32
APR	329.61	10.99	12.02	526	29.0	.11	26.3	74.6	.06		36	42
MAY	370.03	11.94	13.60	855	11.5	.13	11.3	35.0	.05		47	57
JUNE	338.36	11.28	13.53	816	4.9	.12	4.8	7.9	.05		50	60
JULY	338.84	10.93	12.99	563	6.6	.11	6.2	13.8	.04		62	70
AUG	204.72	6.60	11.93	1094	6.5	.18	6.3	16.3	.05		67	72
SEPT	340.48	11.35	13.75	710	4.8	.12	4.7	21.0	.03		65	68
OCT	282.77	9.12	12.72	897	14.6	.24	14.5	73.4	.04		52	61
NOV	316.70	10.56	12.28	630	16.9	.38	16.9	87.6	.07		41	47
DEC	337.33	10.88	11.52	701	49.9	.38	49.9	114.3	.08		32	34
TOTAL	3668.98											
AVG.		10.01	MAXIMUM 13.75	682*	16.7	.19	16.3	MAXIMUM 114.3	.05		46	MAXIMUM 72

* Geometric Mean

CHLORINATION and DISINFECTION

MONTH	RAW WATER					INDUSTRIAL SYSTEM		MUNICIPAL SYSTEM		CHLORINATION			
	NUMBER OF SAMPLES HAVING TOTAL COLIFORM ORGANISMS PER 100 ml OF					NUMBER OF SAMPLES TAKEN	NUMBER HAVING COLIFORM ORGANISMS	NUMBER OF SAMPLES TAKEN	NUMBER HAVING COLIFORM ORGANISMS	TOTAL AMOUNT OF CHLORINE USED 10 ³ pounds	DOSAGE		RESIDUAL IN PLANT EFFLUENT mg/l
	0	1 - 3	4 - 32	33 - 320	> 320						PRE - mg/l	POST - mg/l	
JAN				2	3	5	0	10	0	2.3		1.1	.5
FEB		1	1	2		4	0	8	0	2.5		.9	.5
MAR			1	1		2	0	4	0	2.7		.9	.5
APR	1			2	1	4	1	8	0	3.6		1.1	.5
MAY	1			3	1	5	0	10	0	3.9		1.1	.5
JUNE			1	1	2	5	1	10	1	3.4		1.0	.5
JULY	1			2	1	4	0	8	1	3.3		1.0	.5
AUG				1	1	2	0	4	2	2.0		1.0	.5
SEPT			2	2		4	1	8	1	3.2		1.0	.5
OCT			1	2	2	5	1	10	0	2.8		1.0	.5
NOV				4		4	0	8	0	3.3		1.0	.5
DEC				1	1	2	0	4	0	3.9		1.2	.5
TOTAL	2	1	6	23	12	46	4	92	5	36.9			
AVG.	90 (NOTE - Average shown is the GEOMETRIC MEAN)									101 pounds per day		1.0	.5

WATER QUALITY

PROPERTY	RAW & TREATED WATER				DESIRABLE STANDARDS
	NUMBER OF SAMPLES	AVERAGE	MAXIMUM	MINIMUM	
HARDNESS in mg/l as CaCO_3	22	145	186	128	80 - 100
ALKALINITY in mg/l as CaCO_3	22	102	118	96	30 - 100
IRON in mg/l Fe	22	.46	2.30	<.05	Less than 0.3
CHLORIDE in mg/l Cl^-	20	26	27	22	Less than 250
pH in pH units	22	8.1	8.3	7.6	7.0 - 8.5
FLUORIDE in mg/l F^-	12	.1	0.2	<0.1	Less than 1.2
SULFATE in mg/l SO_4	10	29	37	25	Less than 50
COLOUR in apparent units	19	<10	20	5	Less than 5
PHENOLS in $\mu\text{g/l}$ as $\text{C}_6\text{H}_5\text{OH}$	10	4	16	0	Less than 1

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